Hand-off Communication: Implementation of an Electronic Shift Report to Improve Patient and Nurse Satisfaction

DNP Final Project

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By

Dana Wade, MSN, RN, CPHQ, CNS-BC, NEA-BC

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DNP Final Project Committee:

Elizabeth Barker, PhD, RN, FNP-BC, FACHE, FAANP, FAAN, Advisor
Barbara Warren, PhD, RN, PMHCNS-BC, FAAN
Jerry Mansfield, PhD, RN

Abstract

Purpose: The purpose of this quality improvement project was to examine the effects of a new hand-off shift report process (I PASS the BATON and bedside reporting) compared to the current process (SBAR) on patient and nurse satisfaction.

Background and Significance: Effective communication during patient hand-off is vital in ensuring patient safety and quality of care. Hand-off shift report performed at the bedside has been found to increase patient satisfaction, nursing teamwork, and improve communication among caregivers and patients.

Design: The design for this project was a quantitative, 2 independent group cross sectional design using data retrieved from standard-of-care value-based quality metrics and survey methods.

Setting and Sample: Three medical-surgical nursing units located in a Quaternary care medical center in Northeast OH. Convenience sample of full and part-time nurses and patients discharged eight week before and after intervention.

Procedures/measures: Data was collected on nurse satisfaction using a 15-item Nurse Survey and patient satisfaction using the 3 questions in the nurse communication domain of the HCAHPs survey. Descriptive statistics, Levine's test for normality and *t*-test for independent groups was conducted on each individual question for both survey responses. Data was collected on both pre and post intervention.

Findings: After two months, there was not a significant difference found between the current hand-off process and new hand-off process. Nurses identified a slight increase in the need for teamwork (p=0.012) and conducting the hand-off report at the bedside (p=0.012). Patients identified a slight increase in nurse communication mean results with the most identified as nurse

courtesy and respect (p=0.021). Comparisons between the pre and post-implementation nurse and patient satisfaction surveys did not favor the new hand-off tool over the current tool.

Implications: Project demonstrated the value in analyzing the implementation of practice changes that help inform leaders of lessons learned that could later influence changes impacting patient and staff outcomes. Evaluation and analysis of innovative approaches to hand-off shift report leveraging technology are further needed.

Chapter One: Introduction, Purpose, and Significance

Introduction:

Effective communication during patient hand-off is vital to ensuring patient safety and quality of care. Patient safety and the quality of patient care has become a focus in the United States healthcare delivery system. The Institute of Medicine's (IOM) 2000 report, *To Err Is Human*, estimated that medical errors cause 44,000-98,000 deaths each year (IOM, 2000). The Office of Inspector General (OIG) also reports that in 2010, 7.52 % of the adverse patient events in hospitals among Medicare beneficiaries were attributed to miscommunication between healthcare providers (OIG, 2010). In 2012, the American Nurses Association found that 80% of medical errors are attributed to miscommunication among healthcare providers which has led to an increased emphasis on strategies to promote patient safety and facilitate nursing teamwork (ANA, 2012). Miscommunication among health providers was also identified by The Joint Commission (TJC) as one of the main causes for sentinel events in hospitals. In a review of 2455 sentinel events analyzed by TJC, over 70% were found to be attributed to miscommunication of patient information among health care providers and approximately 75% of these patient died (http://www.jointcommission.org).

In 2006, TJC acknowledged that hand-off communication from one nurse to another during hand-off shift report represents a vulnerable step in the provision of safe patient care (http://www.jointcommission.org). Therefore, in 2009, the standardization of hand-off shift communication was identified as one of the National Patient Safety Goals from TJC. A main component of nursing practice is to ensure that accurate patient information is transferred from one nurse or healthcare provider to another. For hospitalized patients, hand-off shift report between the off-going and on-coming nurses must include current information about patient care,

treatments, condition, and recent or anticipated changes in the patient. Furthermore, hand-off shift report performed at the bedside has been found to increase patient satisfaction (McMurray, Chaboyer, Wallis, Johnson, & Gehrke, 2011), nursing teamwork, and improve communication among caregivers and patients (Wakefield, Ragan, Brandt, & Tregnago, 2012).

There has been growing interest in using technology to promote effective communication. As part of the Affordable Care Act (U.S. Department of Health and Human Services, 2011), the Secretary of Health and Human Services (HHS) was required by law to establish a National Strategy for Quality Improvement in Healthcare (i.e., the National Quality Strategy). The Affordable Care Act calls on the National Quality Strategy to include HHS agency-specific plans, goals, benchmarks, and standardized quality metrics, including promoting effective communication and the use of computer technology. Therefore, a standardized approach to bedside reporting using technology that involves healthcare providers, patient, and families is a step that may improve effective communication, patient outcomes, and nursing practice.

Problem and Background:

In response to TJC report on miscommunication failures during hand-off shift communication, healthcare organizations began to create standardized approaches to hand-off shift communication for nurses. The importance of sharing a common model in communication prompted healthcare organizations, such as the Cleveland Clinic Healthcare System, to use one of the hand-off models available, the Situation, Background, Assessment, and Recommendation (SBAR) methodology. SBAR was designed to communicate important information about a patient's condition when action or follow-up on key patient information is requested, such as changes in treatment or patient status. Though widely used, SBAR is not detailed enough to

determine specific content for shift report to effectively communicate information regarding the care of complex patients (Jukkala, James, Autrey, & Azuero, 2012). An electronic hand-off tool using SBAR was developed at The Cleveland Clinic in 2010. Nurses have integrated the SBAR hand-off communication tool into the shift report process but have voiced dissatisfaction with the tool due to the broad SBAR concepts; similar concerns were found in an article published by the Department of Pediatrics, Doernbecher Children's Hospital, Oregon Health and Science University in Portland, Oregon (Starmer et al., 2012). Due to these concerns, many healthcare organizations have chosen other communication models, such as I PASS THE BATON (Agency for Healthcare Research and Quality [AHRQ], 2006) or have developed their own communication models.

In response to the need for better teamwork among healthcare providers, the U.S. Department of Defense (DOD) Patient Safety Program and AHRQ developed an educational program, Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS®) (Appendix A); implemented by several large academic centers resulting in improved teamwork, enhanced patient safety, and higher quality outcomes (AHRQ, 2006; Riley et al., 2011; Forse, Bramble, & McQuillan, 2011; Mayer et al., 2011). One of the key concepts in TeamSTEPPS® is communication. SBAR in the TeamSTEPPS® program is used to communicate urgent changes in patient status among healthcare providers. I PASS THE BATON, an evidence based tool (Appendix B) is an additional communication tool used for in-depth communication of patient information, such as needed in a hand-off communication for nurses to utilize during change of shift between providers.

I PASS THE BATON is an acronym for:

- Introduction,

- Patient,
- Assessment,
- Situation,
- Safety concerns,
- (the) Background,
- Actions,
- Timing,
- Ownership, and
- Next

This tool provides a framework for the patient handoff process by empowering the on-coming nurse to question and/or clarify information from the off-going nurse (Thomas & Donohue-Porter, 2012). It meets the standard of closed-loop communication and has also been adopted in resident education programs by the American Academy of Pediatrics (Starmer et al., 2012). Where SBAR is most effective, when time is limited and a brief summary is sufficient to make a decision, I PASS the BATON offers a structured process to transmit information about complex patients who require broader information and context essential to promote patient safety.

The first step using the I PASS the BATON is for the nurse to introduce themselves to the on-coming nurse and to the patient. Patients in their acute care hospital environment often perceive a lack of communication with healthcare team members (Radtke, 2013). Lack of communication between nurses and patients has been verified through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), a 27-item survey, which measures patient perceptions of their hospital experience (Center for Medicare and Medicaid Services [CMS], 2014) (Appendix C, page 1 of survey). Actively engaging the patient or their family in

the hand-off shift report can improve patient satisfaction (Wakefield et al., 2012), HCAHPS communication scores (Radtke, 2013; Cairns et al., 2013) and meets the Joint Commission 2011 National Patient Safety Goals to involve the patient in their care (http://www.jointcommission.org). A patient may not understand procedures and treatments as part of the daily plan of care. Deficits in the level of communication between health care team and the patient can potentially lead to patient harm.

Bedside reporting improves communication with a patient and their family by creating an environment of patient focused care through the application of evidence-based practice (Radtke, 2013). Bedside reporting has also been shown to enable nurses to assess the patient environment (Evans, Grunawalt, McClish, Wood, & Friese, 2012), provide the nurse with an opportunity to visualize the patient and build rapport with the patient (Cairns et al., 2013; Radtke, 2013), and increased nurse satisfaction leading to a feeling of empowerment (Wakefield et al., 2012).

Purpose and Picot Statement:

The purpose of this project is to examine whether the TeamSTEPPS® communication, I PASS the BATON method, compared to the current practice (SBAR) for hand-off shift communication results in bedside shift reporting, and higher levels of nurse satisfaction and patient satisfaction with nurse communication. The first step of an evidence based practice (EBP) project is to ask the clinical question in a PICOT format (i.e., Patient population, Intervention, Comparison intervention, Outcome, and Time frame) in order to present the most pertinent information (Melnyk & Fineout-Overholt, 2014). The PICOT question for this project is, “On adult medical-surgical combined nursing units, how does the TeamSTEPPS® handoff

electronic communication tool (I PASS THE BATON) for shift report compared to the current electronic tool (SBAR) effect patient and nurse satisfaction?"

Significance to Nursing, Health Care, and Relevance to DNP Essentials:

With the U.S healthcare strategic focus on quality of care and patient outcomes, providing cost efficient care, and creating a vibrant health care workforce, this project provides nursing with evidence for creating safe work environments and safe cultures in providing patient care. The significance to nursing and health care for this project is supported in landmark reports, current literature, and is linked to all the essentials of doctoral education for advanced nursing practice (AACN, 2006). The use of advanced communication skills and quality improvement methodologies in implementing evidence- based programs to improve patient safety are part of the essentials for doctorate nursing practice.

One of the main foci of the Patient Protection and Affordable Care Act is to improve the quality and efficiency of U.S. health care by providing safe quality accessible patient care to everyone by creating transparency in quality outcomes for value based purchasing (Kovner & Knickman, 2011). The first 2014-2018 strategic goal for the HHS is to strengthen health care with an objective to improve health care quality and patient safety (Sebelius, 2014). Additionally, the Institute for Healthcare Improvement (IHI) has created the Triple Aim as a framework for the delivery of health care to better meet the needs of patients through better quality care outcomes, improve the overall health of the population, and reduce the cost burden for healthcare (IHI, 2012).

Patient satisfaction is of vital importance to hospitals because it can impact an organizations reputation and reimbursement. According to Long (2012), healthcare organizations have traditionally focused on clinical outcomes, paying little attention to feedback

about the patient satisfaction. The focus has shifted with the initiation of HCAHPS, a standard survey for measuring patients' perspectives on hospital care (Long, 2012). On Oct. 1, 2012, CMS began penalizing and rewarding hospitals based on a formula that determines how well a hospital performs with clinical processes of care and patient satisfaction measures linking data as part of the value-based purchasing (VBP) program (CMS, 2012). The purpose of the VBP program is to improve the health of Medicare participants by purchasing better care for them at a lower cost. The program is funded with hospitals' Medicare IPPS operating dollars. Under the VBP program, Medicare reduced payment rates to all hospitals by 1.25 percent and set aside $1.1 billion for incentives. While every hospital is getting something back, more than half are not recouping the 1.25 payment they initially forfeited, resulting in a net loss. The payment adjustments are applied to each Medicare patient and potential bonuses and penalties change each year (Rau, 2013).

Many states in the U.S. are projected to have nursing shortages in 2025 despite the fact that, on a national level, there is projected to be an excess of both RNs and LPN (HHS, 2014). Due to the rising acuity of hospitalized patients and aging population, retention and nurse satisfaction with the work environment is essential. Building positive relationships, effective communication methods, and teamwork between healthcare providers will ensure patient safety, coordination of care, and a high quality work environment. Few errors are made by highly functioning teams, indicating a link between teamwork and a patient safety culture (AHRQ, 2006). Recognizing that patient safety and the work environment are related, more attention and resources must be applied to improving teamwork, relationships, and communication at the patient unit level of an organization. The results of this project can be used to improve the

quality of nursing work environment and patient safety promoting teamwork and effective communication.

Healthcare organizational leadership including nursing leaders can use the results of this project to develop team training and implement strategies on effective communication and building positive healthcare provider relationships with the aim at improving teamwork and patient outcomes. Quality improvement projects that focus on teamwork and effective communication have the potential to:

1. increase patient satisfaction by engaging patients in the hand-off communication process (Cairns et al., 2013; Sand-Jecklin & Sherman, 2014),
2. prevent adverse events (e.g. patient falls, etc.) that impact patient outcomes, (McMurray et al., 2011; Sand-Jecklin & Sherman, 2014) and,
3. increase nurse satisfaction leading to higher retention (Wakefield et al., 2012; Evans et al., 2012).

The components of this project align with four of the eight Essentials of Doctoral Education for Advanced Nursing Practice (DNP) and demonstrates many of the competencies required for degree completion (AACN, 2006).

1. Essential I - Scientific Underpinning for Practice: This DNP project will provide the student an opportunity to demonstrate the skills needed in integrating nursing evidence from literature reviews with strategies to improve effective hand-off shift communication on patient and nurse satisfaction.
2. Essential II - Organizational and Systems Leadership for Quality Improvement and Systems Thinking: This project will provide the student with the opportunity to improve communication during the hand-off shift report process empowering the

frontline nurse and engaging the patient in the delivery of care. It also will provide the DNP student with experience in leading and facilitating an evidence-based practice change from a pilot to the evaluation process for a potential system-wide practice change.

3. Essential III - Clinical Scholarship and Analytical Methods for Evidence-Based Practice: Using an evidence-based practice implementation model for the quality improvement project, the DNP competencies will be demonstrated within the appraisal of the literature, design and implementation of change, evaluating the outcomes, and disseminating practice improvement findings.
4. Essential IV - Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care: The development of an electronic hand-off tool and data analysis from the project findings will provide the DNP student with advanced technical skills. It also will provide the frontline nursing staff with a tool inclusive of current patient information for hand-off shift report.

Project Aims and Objectives:

The overarching aim of this project is to evaluate the effectiveness of a new electronic hand-off RN shift report on patient and nurse satisfaction and revise per recommendations from nursing staff prior to system-wide implementation. The specific objectives were to:

1. Develop a new electronic hand-off tool using a TeamSTEPPs® evidence based format with participation by frontline nurses;
2. Pilot the tool on medical-surgical nursing units; and
3. Evaluate nurse and patient satisfaction with the hand-off process from the pilot to determine further utilization for a multi-hospital health care system.

Definition of Terms:

1. Hand-off shift communication: information about a patient's condition and plan of care between the off-going nurse and on-coming nurse at the time of a work shift change.
2. Patient Satisfaction: patient perception of nurse communication in response to questions on the HCAHPS survey (Appendix C). For this project, questions 1-3 will be used:
    - During this hospital stay, how often did nurses treat you with courtesy and respect?
    - During this hospital stay, how often did nurses listen carefully to you?
    - During this hospital stay, how often did nurses explain things in a way you could understand?
3. Nurse Satisfaction: nurse perception of the hand-off tool and process in response to the questions on the Hand-off Nurse Survey (Appendix D).

Chapter Two: Conceptual Framework and Review of Literature

Conceptual Framework:

Evidence-based practice (EBP) is a problem solving approach to clinical decision making that involves the integration of best evidence and clinical expertise to improve outcomes for individuals, groups, communities, and systems (Melnyk & Fineout-Overholt, 2014). Many models have been developed to guide the implementation of EBP. One of these EBP models is Rosswurm and Larrabee's (Larrabee, 2009), *Model for Evidence-Based Practice Change* (Appendix E). The six step model integrates principles of quality improvement, use of team work tools, and evidence-based translation strategies to promote adoption of a new practice. The steps are sequential and include: (1) assessing the need for change in practice, (2) locating the best evidence, (3) critically analyzing the evidence, (4) designing practice change, (5) implementing and evaluating the change in practice, and (6) integrating and maintaining the change in practice. Each step consists of several tasks which are dependent on the proceeding step in the change process. The final steps of the model guide implementation and evaluation of a change in practice with pilot study demonstration. The change in practice is then adopted or rejected. The model has been used in primary care, acute care, or other settings to advance quality improvement through the use of evidence-based changes in practice (Kavanagh, Connolly, & Coben, 2006; Larrabee, Sions, Fanning, Withrow, & Ferretti, 2007) . This model was used as the conceptual framework to guide the implementation of this quality improvement project.

Rosswurm and Larrabee (1999) developed the Model for Evidence-Based Practice Change to guide nurses and other healthcare professional through a systematic process for the change to evidence-based practice. Initially, a need for change is identified linking the problem

with interventions and outcomes followed by review of literature and pilot to determine appropriateness of change. The assessed need for change in the hand-off process at Cleveland Clinic was first identified by feedback from nursing staff on dissatisfaction with current tool, inconsistency in bedside reporting, and a need to increase HCAHPS nurse communication scores. Stakeholders for a pilot project were identified and research evidence was reviewed which led to the development of a new hand-off shift report tool that promoted bedside shift reporting with patient participation. The Rosswurm and Larrabee (Larrabee, 2004) model promotes team participation in designing, implementing, and evaluating the practice change. The evaluation process of this project has included data collection on patient and nurse satisfaction and analysis of findings. The final stage of this model is to integrate and maintain the practice change to determine next steps. Dissemination of pilot project findings will be initially reviewed with stakeholders including Nursing Informatics, Nurse Managers and Nursing staff from the pilot units. Conclusion and recommendations will be made on adopting the change in practice or determining if further revisions to the hand-off process are needed.

Related Research:

Patient hand-off between nurses at shift change is an important process in nursing practice. It promotes exchange of information to ensure continuity of care and patient safety. Variable methods are used for hand-off communication such as, written, verbal, and recorded reports. Few of these methods promote the engagement of the patient in a bedside report (Cairns et al., 2013). Rather, methods create ineffective communication and do not allow the patient or family to be involved in developing the daily plan of care potentially leading to patient dissatisfaction with their hospital stay. There is also an association between poor-quality handoffs, adverse patient events, and provider dissatisfaction (Jukkala et al., 2012; Sand-Jecklin & Sherman, 2014; Maxson, Derby, Wrobleski, & Foss, 2012). Poor team communication can directly affect

nurses resulting in conflict and hostility among team members, decreased job satisfaction, and increased nurse turnover. Nurses feel empowered and autonomous when there are positive relationships with patients, patient families, management, peers, and other members of the healthcare team (O'Brien-Pallas, Murphy, Shamian, Li, & Hayes, 2010).

Lack of teamwork and respect are observed in healthcare organizations that do not promote a culture and environment necessary for successful hand-off of patient care (The Joint Commission, 2009). In an effort to improve communication among healthcare providers during patient transfer of care, the Joint Commission Center for Transforming Healthcare began a project with ten collaborating hospitals and healthcare systems focused on hand-off communications. As part of this project, they examined hand-off communications problems, identified specific causes for failures and barriers to improvement, and subsequently implemented and validated solutions that improved performance. They found that standardizing critical content, using technology to assist in the hand-off process, allowing opportunities to share information among healthcare providers and with patients, using data to reinforce improvements, and coaching staff on the hand-off process led to more successful hand-off communication. Application of these concepts included the development of a standard training to conduct hand-off, just-in-time coaching, and the design of an electronic hand-off tool. The results of implementing these interventions in the project were an increase in patient and family satisfaction, staff satisfaction, and successful transfers of patient information from one healthcare team member to another (The Joint Commission, 2009).

In a systematic review of the literature on hand-off communication (Riesenberg, Leitzsch, & Cunningham, 2010), a standardized approach to hand-off communication for shift report was shown to enhance communication quality, improve organization of information for

communication, and improve nurse's knowledge and ability to anticipate changes in patient conditions. The primary purpose of using a hand-off process is to assist the nurse in conveying complete patient information. Incomplete information communicated during the hand-off process can lead to medication errors, longer lengths of stay due to patient injury, and patient dissatisfaction (Blouin, 2013).

Various data collection methods and hand-off formats have been studied in the literature to enhance exchange of patient information. In a systematic review of inter-shift acute care hand-off reports, the importance of structured written or computerized tools was found to assist the nurse in remembering patient information and was readily available as a reference (Poletick & Holly, 2010). The use of technology in the design and implementation of hand-off reporting has been shown to improve nurse satisfaction with shift reporting, improve documentation compliance, and improve the quality of the information reported (Nelson & Massey, 2010; Oroviogoicoechea et al., 2013).

In hand-off shift reporting, patient information needs to be correct and current. Using an electronic medical record system for hand-off communication helps by providing current recorded patient information immediately available for review by each provider. Conducting the hand-off report at the bedside will also allow patient needs to be clarified in an efficient manner and decisions regarding care adjusted based on patient preferences. Bedside shift reporting has been shown to improve hand-off communication, patient satisfaction, and patient safety with 50% of the nursing staff reporting an increase in teamwork and accountability (Radtke, 2013; Cairns et al., 2013).

In a systematic literature review of bedside shift report (Gregory, Tan, Tilrico, Edwardson, & Gamm, 2014), researchers found that despite the strong evidence demonstrating

the benefits of bedside shift report, issues still remain on sustaining the process after implementation. Recommendations found in this review included the need to further examine the connection between the use of a standardized hand-off tool during bedside shift report and its correlation to an increase in patient and nurse satisfaction, activation of rapid response teams, and patient outcomes (Gregory et al., 2014). This review also recommended assessing staff attitudes before and after implementation of bedside shift report to identify the need for further interventions that support sustainability (Gregory et al., 2014).

TeamSTEPPS® is an evidence based teamwork training system with a conceptual framework that includes the importance of effective communication and attitudes toward teams. Vertino (2014) found that TeamSTEPPS® concepts and tools can promote a positive change in staff attitudes toward communication. I PASS THE BATON is one communication hand-off tool that is introduced in TeamSTEPPS® training. Research has also shown that implementing a hand-off shift report using the electronic medical record and TeamSTEPPS® tools led to increased compliance with nursing documentation indicators, such as pain assessment, pain reassessment, and correct abbreviations (Wu et al., 2013).

Thomas and Donohue-Porter (2012) conducted a 7 hospital pre-post quality improvement evaluation of the TeamSTEPPS® IPASS the BATON tool for shift report process at the bedside with patient participation. The outcomes of this project included an improvement in satisfaction of nurses and an increase in satisfaction of patients. The nurses found that the report process assisted with decreasing report time, enhanced the communication of pertinent patient information, created good inter-shift relationships among nurses, and provided available time for questions to be answered. Three patient satisfaction indicators improved in one of the hospitals from the 49th to the 92nd percentile one year after implementation.

The related research for this project is supported by the need to develop a standardized approach to hand-off shift report leveraging the electronic medical record for accurate and timely transfer of information involving the patient. The ability for the nurse to effectively communication patient information allows him/her to implement patient-centered care decreasing potential miscommunication of information resulting in patient harm and improving nurse job satisfaction.

Chapter Three: Methodology

Project Design

The design for this project is a quantitative, 2-group cross-sectional design using data retrieved from standard-of-care value-based quality metrics and survey methods. Prior to beginning this project, approval to conduct this quality improvement project was obtained from the Healthcare System Institutional Review Board (IRB) of The Cleveland Clinic and The Ohio State University.

Setting and Sample

The setting for this project was conducted on three medical surgical combined units on the main campus of the Cleveland Clinic Health Care System.

A convenience sample of nurses (registered nurses (RNs) and licensed practice nurses (LPNs) employed on the selected nursing units were included in the project. Inclusion criteria for the participants included all full-time and part-time nurses. Nurses that work on an as needed basis (PRN), float to the selected units to supplement staffing, and those with pending disciplinary action with the management team were excluded from this project. G*Power, a tool to compute statistical power analyses (Faul, Erdfelder, Buchner, & Lang, 2009), was used to calculate the minimum sample size needed to compare nurse satisfaction between groups (pre and post intervention). Assuming a moderate effect size of 0.5, two independent samples, power (beta) of 0.80, and an alpha of 0.05, 106 nurse participants were needed (53 per group) to determine satisfaction with the new hand-off shift report communication tool and process. Since there were an estimated 150 eligible nurses employed on the pilot nursing units, a minimum sample of 53 responders per data collection period equated to a 35% survey response rate; a feasible sample size. In an effort to reduce non-response bias and increase response rates,

several modes of data collection were used including a paper survey and online survey. Participants were provided a two week time frame to complete the survey. The opportunity to participate in the online survey was introduced in email notices to nurses several times during the two week period. Paper surveys were made available during shift huddles for all day, evening, and weekend shifts on the project nursing units.

To calculate the minimum sample size needed to compare HCAHPS patient satisfaction scores between independent groups, assuming a moderate effect size of 0.35, two independent samples, power (beta) of 0.80, and an alpha of 0.05, 204 HCAHPS patient responses were needed (107 per group) to examine if differences exist among patient's perception of nurse communication with the new hand-off shift report communication tool. These nursing units combined have a total of about 120 beds with an average of 600 patient admissions each month. In the past 6 months prior to the project, the combined nursing units had averaged a 17- 18% (112 patients) patient response rate from the HCAHPS patient satisfaction surveys. For this project, a minimum sample of 107 responders per data collection period equated to a 17% survey response rate; a feasible sample size. To reduce non-response bias and ensure that differences in HCAHPS results reflect differences in hospital quality only, CMS uses an adjustment model for patient mix and provides several modes for data collection which include mail only, telephone only, mail with telephone follow-up, and active interactive voice response (IVR) (http://www.cms.gov).

Methods

After IRB permission is granted, the project lead met with Nurse Managers and Directors of the selected nursing unit to review the project, gain support in implementing the practice change, and identify stakeholders. The management team served as the liaison between

the participants and project leader, ensuring that participants are free to attend project information sessions.

The new hand-off electronic communication tool was designed in collaboration with members of the selected unit's shared governance committees. The collaborative team was identified by the Nurse Managers to assist in the design of the new hand-off tool and process based on their workflow and patient care needs. The I PASS THE BATON tool was introduced through literature reviews as an evidence-based tool that has shown to improve hand-off communication during shift report to the shared governance committee. A series of meetings were conducted for the purpose of designing the electronic hand-off communication tool with shared governance members and Nurse Managers. Representatives from the department of Nursing Informatics as stakeholders in this project were also part of the team to assist with the electronic design of the hand-off tool pulling information from the electronic medical record. After the new hand-off tool was developed, several information sessions were conducted to present the project and timeline for implementation to frontline nursing staff.

Refinements to the tool were made during the course of this pilot project as issues and concerns were identified by frontline nurses utilizing the tool for hand-off shift report. Some of these refinements included linking to areas in the electronic medical record such as, the patient problem list and medication records to decrease the size of the tool without eliminating valuable patient information. Ongoing assessment of tool feasibility and content inclusiveness provided the project team with an opportunity to engage nurses in ownership of practice changes, evaluate the program effectiveness, and potentially minimize unexpected barriers.

Instruments

Two instruments were used to collect data for this quality improvement project, the HCAHPS survey (Appendix C) and nurse survey (Appendix D) developed by the project leader:

(1) Patient satisfaction was measured from the HCAHPS survey focusing on 3 questions within the nurse communication domain (Radtke, 2013). These questions address the patient's perception of respect, explanation, and listening from the nursing staff. The survey uses a 4-point Likert-type scale, 1 as "never" to 4 as "always". Baseline patient level satisfaction data from HCAHPS results were obtained through the Nurse Managers from the Hospital HCAHPS analyst and reviewed prior to the implementation of this quality pilot project. The HCAHPS patient level satisfaction data for this project time frame were available within six weeks after patient discharge. At the conclusion of the pilot project, the HCAHPS patient level satisfaction data was collected through the Nurse Managers from the Hospital HCAHPS analyst to capture patients discharged during the nurse use of the pilot hand-off shift report.

(2) The 15-item Nurse Survey was used to collect demographic information on participants (5 questions), TeamSTEPPS® team communication (5 questions), and nurse satisfaction with hand-off tool questions (5 questions). The survey uses a 5-point Likert-type scale, 1 as "strongly disagree" to 5 as "strongly agree". Nurses' attitudes on team communication were collected pre and post intervention as part of the Nurse Survey, using five communication questions found in the TeamSTEPPS® Teamwork Attitudes Questionnaire (T-TAQ). The tool has been tested for psychometric properties involving validity, reliability, and construct inter-correlations (AHRQ, 2006). Additionally, nurses' satisfaction with shift report is measured with five questions that were developed by the project leader with content validity confirmed from content experts, including advanced practice nurses and nursing informatics

representatives. Demographic data included age, gender, years on the nursing unit, years as a professional nurse, and status of employment and uses three fill-in-the-blank items and two circle-the-correct-response items.

Information sessions were provided for the nurses on the selected nursing units to explain the intervention (new PASS the BATON hand-off shift report tool) and their role in shift-to-shift report. All nurses on the pilot units were to utilize the new hand-off tool and process. During the information sessions, voluntary participation in the Nurse survey was explained. Each nurse was provided an opportunity to complete the survey anonymously through an online version or a paper version which included a self addressed sealable envelope that was placed in outgoing interoffice mail to the project leader. By completing the survey, the nurse indicated consent to participate in the project. After the two month implementation phase was completed, the nurse survey was re-distributed to the nursing staff for completion using the same methods as pre-intervention. All nurses were provided the opportunity to complete the post-intervention survey including those that did not complete the pre-intervention survey. Therefore, this is representative of two independent groups from a convenience sample of nurses from the three pilot project nursing units.

Data Analysis Plan

All data was numerically coded for identification during data analysis. SPSS was used to analyze data sets. Descriptive statistics was used to depict the characteristics of the nurses that participated in the project and evaluate the quantitative responses from the Nurse Survey and HCAHPS Patient Survey.

There are two dependent outcomes (nurse and patient satisfaction) measured pre and post intervention for all participants at the ordinal level (Polit, 2010). The pre and post participants

for both the Nurse and Patient survey are independent groups. Each (10 total questions) of the 5-item nurse survey components was analyzed by totaling scores at each assessment period and using independent (parametric data) analyses to determine difference in pre- and post-intervention scores. Each (3 total questions) of the 4-item patient survey components was analyzed by totaling scores at each assessment period and using independent (parametric data) analyses to determine difference in pre- and post-intervention scores. A summary of the data analysis was compiled with tables and graphs illustrating the differences pre and post hand-off communication practice changes. The data analysis was presented to the collaborative shared governance team.

Human Subject Protection

Participation in this project was voluntary. All participants were provided project information, risk and benefits of participating, and informed of the freedom to withdraw from the project at any time. There were no identifiers on the data collection tools and minimal risk to confidentiality. Data for this project was placed on an encrypted USB drive so analyses could be completed at the Ohio State University, as part of the project leader's doctorate of Nursing Practice (DNP) program. The USB drive was stored in a locked desk with access only by the project leader.

Chapter Four: Findings

Results

Description of Nurse Sample

There were an estimated 150 registered nurses employed on the combined pilot nursing units. These numbers included part-time and full-time nurses working primarily12-hour rotating shifts. Each nurse was asked to use the new hand-off tool at the bedside for shift report during the pilot project. There were 106 nurses (53 nurses at each data collection point) that responded to the nurse survey pre and post implementation of the new hand-off tool resulting in a 71% response rate. Table 1 provides a description on demographics for each group.

Table 1: Description of the Sample, Two Independent Groups:

Demographic Descriptors	**Current Hand-off Process Group (Pre-Intervention)**	**New Hand-off Process Group (Post-Intervention)**	***p****
Number of RN Responses	53	53	
Age in years (Mean/SD)	34.45 (9.5)	34.8 (9.5)	0.854
Gender			0.467
Male	3 (6%)	5 (9.4%)	
Female	50 (94.3%)	48 (91%)	
Employment Status			1.000
Full-time	49 (92.4%)	49 (92.4%)	
Part-time	4 (7.5%)	4 (7.5%)	
Months in Position (Mean/SD)	47.45 (69.2)	57.3 (65.2)	0.453
< = 1 year	19 (35.8%)	12 (22.6%)	
> 1-5 years	23 (43.4%)	23 (43.4%)	
> 5-10 years	7 (13.2%)	12 (22.6%)	
> 10 years	4 (7.5%)	6 (11.3%)	
Months as Nurse (Mean/SD)	77.75 (103.4)	81.1 (90.3)	0.858
< = 1 year	15 (28.3%)	9 (17%)	
> 1-5 years	19 (35.8%)	21 (39.6%)	
> 5-10 years	9 (17%)	12 (22.6%)	
> 10 years	10 (18.9%)	11 (20.8%)	

*Results from SPSS, descriptive and t-test for independent groups; no statistically significance between groups ($p < .001$)

Nurse Survey Results

An independent sample t-test was conducted to compare nurse satisfaction with the current hand-off shift report process and a new hand-off shift report process. The Nurse Survey included 10 questions using a 5-point Likert scale including "strongly disagree" recorded as "1", "disagree" recorded as "2", "neutral" recorded as "3", "agree" recorded as "4", and "strongly agree" recorded as "5". The questions were analyzed individually using Statistical Package for the Social Sciences (SPSS) software using the t-test for independent samples. Table 2 provides the results of this analysis.

Table 2: Nurse Survey Outcomes for Current and New Hand-off Groups

Nurse Survey Items	**Current Hand-off Process (Pre-intervention) N=53 M (SD)***	**New Hand-off Process Post-intervention N=53 M (SD)***	**(%) Mean Difference**	***p****
Q1 Teams communication in reducing errors	4.45 (.80)	4.64 (.55)	4.1%	0.161
Q2 Poor communication cause of reported errors	4.09 (.80)	4.3 (.60)	4.9%	0.133
Q3 Reducing errors by patient communication	4.02 (.75)	4.36 (.62)	7.8%	0.012
Q4 Team members who ask questions	3.94 (.95)	4.34 (.62)	9.2%	0.012
Q5 Importance of standardized hand-off method	4.21 (.88)	4.23 (.67)	4.7%	0.902
Q6 Electronic change of shift report for hand-off	3.48 (.86)	3.15 (1.19)	(-) 10.5%	0.138
Q7 Patient information consistent with condition	3.38 (.79)	3 (1.49)	(-) 12.7%	0.077
Q8 Hand-off tool ease in use	3.1 (1.03)	2.6 (1.11)	(-) 19.2%	0.026
Q9 Electronic report improves hand-off quality	3.4 (.88)	2.83 (1.20)	(-) 20.1%	0.007
Q10 Electronic report engages patient	3.25 (.81)	2.81 (1.13)	(-) 15.7%	0.025

*Results from SPSS, t-test for independent groups; no statistically significant difference $p<.001$

Patient Survey Results

An independent sample t-test was conducted to compare patient satisfaction with nurse communication using the current hand-off shift report process and a new hand-off shift report process conducted at the bedside. The HCAHPS Survey included 3 questions within the nurse communication domain using a 4-point Likert scale including "never" recorded as "1", "sometimes" recorded as "2", "usually" recorded as "3", and "always" recorded as "4". The questions were analyzed individually using Statistical Package for the Social Sciences (SPSS) software using the t-test for independent samples. Table 3 provides the results of this analysis.

Table 3: Patient Survey Outcomes for Current and New Hand-off Groups

HCAHPS Survey Item: Nurse Communication Domain	**Current Hand-off Process (pre-intervention) N=107 M (SD)***	**New Hand-off Process (post-intervention) N=107 M (SD)***	**(%) Mean Difference**	***p****
Q1 Nurses Explain	3.65 (.57)	3.75 (.57)	2.7%	0.230
Q2 Nurses Listen	3.67 (.57)	3.77 (.53)	2.7%	0.210
Q3 Nurses Respect	3.72 (.55)	3.88 (.45)	4.1%	0.021

*Results from SPSS, t-test for independent groups; no statistically significant difference p<.001

Discussion

Nurse Survey Results

Nurses that participated in the pilot project and completed the survey were asked to evaluate their perception of teamwork and satisfaction with the hand-off process comparing the current and new hand-off shift report processes. Levene's test for equality of variances was conducted on all 10 questions. All questions were equal among pre and post groups with the exception of Q7 (consistent information in report on patient condition). Teamwork

communication and the hand-off process were the categories focused in the first 5 questions of the nurse survey. Although Q1 – Q5 resulted in an increased mean (4.1 - 9.2 % increase in mean differences) when comparing pre and post hand-off processes, the difference in means were not statistically significant (p>.001 for all 5 questions). The new hand-off process prompted the nurse to engage the patient in the process and provide time for the on-coming nurse to ask questions. Questions 3 (decreasing adverse events by including patient) and 4 (asking questions during hand-off) were the closest to having a statistical significance in means (p=.012 for both). Nurses participating in this pilot described an increase in the importance of exchanging information with the patient and family (Current Mean= 4.02, SD= .75; New Mean= 4.36, SD=.62, 7.8% increase in mean difference, p= 0.012) and opportunity to ask questions between off-going and on-coming nurse at shift change (Current Mean= 3.1, SD= 1.03; New Mean= 4.34, SD=.62, 9.2% increase in mean difference, p= 0.012) when comparing the current and new hand-off processes. Although the results were only a 4.1% mean difference in Question 1 (importance in teams communicating effectively to reduce errors), this question was described by nurses to be the most important with an overall mean (4.55) between agree (4) and strongly agree (5) for both hand-off processes.

The last 5 questions (Q6-Q10) of the survey focused on nurse satisfaction (10-20% decrease in mean differences) with the new electronic hand-off shift report tool. The results found that all responses to these questions were not statistically significant (p>.001 for all 5 questions) when comparing the current and new hand-off processes. The responses to these questions resulted in a 10-20% decrease in mean differences between the current and new hand-off processes. The nurses described a decrease in satisfaction with the new hand-off electronic tool as compared to the previous hand-off tool and process. Nurses described the importance in

a standardized approach to hand-off shift report (Q6, Current Mean= 3.37, SD= .86; New Mean= 3.07, SD=1.19, p= 0.14) between neutral (3) to agree (4) with an overall mean of 3.2 for both hand-off processes. Nurses reported that the new electronic tool contained information less consistent with patient condition (Q7, Current Mean= 3.38, SD= .79; New Mean= 2.96, SD=1.49, p= 0.08), was more difficult to use (Q8, Current Mean= 3.94, SD= .95; New Mean= 4.34, SD=.62, p= 0.01), did not increase the quality of the hand-off process (Q9, Current Mean= 3.94, SD= .95; New Mean= 4.34, SD=.62, p= 0.01), and did not impact communication with patient and family (Q10, Current Mean= 3.24, SD= .81; New Mean= 2.81, SD= 1.12, $t(104)$= 2.28, p= 0.02) when compared to the current tool. Questions 7, 8, 9, 10 were the closest to significance of $p < .001$ ranging from p= 0.25-0.8. This may be attributed to the nurses voiced concern in utilizing an electronic version of the hand-off shift report tool.

Operationally the nurse survey results illustrated an increase in nurse perception of team communication with the new hand-off process but do not support the use of an electronic tool for hand-off shift report. Free text comments provided by nurses participating in the project noted problems with the use of an electronic hand-off report at the bedside. Comments focused on volume of information not needed at the time of hand-off, visual difficulty with electronic reports, and the need to streamline information specific to patient populations. Comments also reflected on the understanding of bedside reporting with patient and family engagement and the verbal appreciation that patients and families expressed when being included in the daily plan of care.

Patient Survey Results

Patients that participated in the pilot project and completed the HCAHPS survey were asked to evaluate their perception of nurse communication with the hand-off process comparing

the current and new hand-off shift report processes. Levene's test for equality of variances was conducted on all 3 questions. All questions were equal among pre and post groups with the exception of Q3 (nurse treatment with courtesy and respect). Although all questions resulted in an increased mean (2.7-4.1%) when comparing pre and post hand-off processes, the difference in means were not statistically significant (p>.001 for all 3 questions). The new hand-off process was conducted by the nurses at the patient bedside with an opportunity to engage the patient and family in the daily plan of care. When comparing these pre and post processes, the patients did not feel that the nurse explains or listened more effectively with the new hand-off process. The question closest to significance was Q3 (nurse treatment with courtesy and respect) with p= .021. This may have been attributed to the patient's perception that the nurse engaging them in the hand-off process was respectful. Although the results were not statistically significant, operationally there was a slight increase in the mean scores for the new hand-off process. Patient perceptions of the nurse explaining things in a way they understand, listening to them carefully, and treating them with respect was scored by the patient as almost always for both tools. This finding shows that there was no negative impact to patient care as a result of implementing a new hand-off process.

Conclusions

In 2006, Strople and Ottani conducted a systematic review of inter-shift reports to investigate how technology can improve the hand-off shift report process. Though the benefits in using technology to develop an automated report tool were discussed, they found no available research studies that dealt with a purely computer-generated shift report. Their recommendation was further nursing research that explores the full potential of a computer-generated shift report, accompanied by a change in the report process. Since that time several research studies have

supported the use of computerized tools for shift handover reports which led to improved documentation, nurse satisfaction with hand-off report, and supported bedside report (Oroviogoicoechea et al., 2013; Wu et al., 2013; Nelson & Massey, 2010). Thomas and Donohue-Porter (2012) developed a standardized hand-off tool and process utilizing the I PASS the BATON evidence based tool with positive outcomes. This tool was later added to the clinical information system to enable inter-shift reports as well as hand-offs. One aim of this pilot project was to examine the nurse satisfaction with a new electronic hand-off shift report format that supported bedside report as compared to the current format.

The nurse and patient perception of the new tool did not fully support a change from the SBAR tool to the I PASS the BATON tool. Nurses participating in this pilot found a slight increase in the effectiveness of the new tool and process in supporting teamwork and bedside reporting. This may have been attributed to their participation in the project and a heightened awareness of the hand-off shift report communication to prevent errors and bedside reporting. Patients participating in this pilot reported a slight increase in the nurse communication with explaining things in a way they understand and listening carefully to them. The patient's perception of the nurse treating them with respect and courtesy was the closest to significance. This may have been attributed to the increase in completing the hand-off report at the patient bedside which led to a patient's perception of respect in being included in their daily plan of care.

Although nursing representatives from each of the selected nursing units were members of the design team, the nurses completing the survey found the I PASS the BATON tool to be less effective and more cumbersome than their current SBAR tool. This may have been attributed to the need to make further revisions to the tool specific to individual patient

population needs and nursing preferences. Further monitoring of the tool and potential revisions has been recommended by the nurses that assisted with the tool design and the nurse managers of the pilot project nursing units.

Chapter Five: Project Summary

Summary

Clear and effective communication is an essential component of safe patient care. Patients enter the hospital trusting that the health care organization they have chosen is safe and will prevent harm. Effective communication, teamwork, and the involvement of patient and families in the plan of care can improve patient satisfaction with care and prevent adverse events. Using quality improvement models such as a model for change in practice, nurses and multidisciplinary teams can implement an evidence based quality change to improve patient safety, decrease adverse events, improve quality of care, and nurse satisfaction with the care they provide.

The purpose of this quality improvement project was to examine whether the TeamSTEPPS® communication I PASS the BATON method compared to the current method (SBAR) for hand-off shift communication results in bedside shift reporting leading to nurse satisfaction and patient satisfaction with nurse communication. The nurse satisfaction information was obtained by a 15-item nurse survey developed by the project leader that was administered to 106 nurses (53 before implementation of the new tool to evaluate the current tool and 53 after implementation). The response rate was 35% pre/post and an overall 71%. The patient satisfaction information was obtained from 3 questions in the nurse communication domain of the HCAHPS survey. The survey is administered to patients discharged from the pilot nursing units by an outside vendor which is responsible for data analysis and reporting the results to the healthcare organization. Patient responses were randomly selected from groups 8 weeks before the intervention and 8 weeks after the intervention resulting in a total of 214 patient responses (107 before implementation of the new tool to evaluate the current tool and 107 after implementation).

The results indicated that there was a slight increase in nurse satisfaction with teamwork and bedside reporting and patient satisfaction with nurse communication but the increase was not statistically significant. The results did not support changes from the electronic SBAR report format to the I PASS the BATON format. Bedside reporting was identified as an important component by nurses to prevent adverse events and by patients in respecting their need to be included in their plan of care as shown in anecdotal comments by those participating in this project.

The information obtained in this pilot project support the need for continued exploration of hand-off report tools and processes with a need for further nursing research and development of new knowledge on the use of technology in hand-off communication. Patient hand-off of care is a team activity with both caregivers actively participating in an effective communication process. It is imperative to engage the nursing staff in developing an effective communication hand-off process that engages the patient in their plan of care, empowers the nurse, and improves the quality and safety of patient care. This project provides further opportunity for research that will remove limitations and barriers to effective communication.

Limitations

There were several limitations to this project. First, response bias existed with the nurse survey methodology. Due to the nurse survey length and questions, the instrumentation possibly introduced limitations. Some of the questions were vague and did not focus on nurse satisfaction specific to the process of hand-off shift report. Content validity of the nurse survey was tested with content experts but psychometrics measures for the instrument was not tested.

Second, while 53 nurse responses at each data collection point was adequate to perform data analysis, the response rate may not have provided a good representation of the nurses' views across the health care system on the current versus new hand-off shift report tool and process. A

convenience sample of nurses was obtained from the selected nursing units participating in this pilot project. The nurses completing the pre-intervention survey were not necessarily the same nurses completing the post-intervention survey. Also, only 3 nursing units at a large academic hospital were used from a 10 hospital health care system. Therefore, the results may not be generalizable to other specialty nursing units and community hospitals within the system. Additionally, the sample size to evaluate patient satisfaction was small as compared to the amount of potential participants. The Centers for Medicare and Medicaid (CMS, 2014) use a patient-mix adjustment model to address the effects of non-response bias. The HCAHPS survey is administered to patients within 48 hours to six weeks after discharge. Therefore, there is a delay in receiving the survey results which resulted in higher responses pre-intervention as compared to post-intervention. Both sampling methods used for the nurse and patient surveys have the potential to skew results for this project.

Lastly, only quantitative data was collected from the patient and nurse survey. Anecdotal comments received during rounding on the pilot nursing units and comments from HCAHPS were not used in data collection and analysis. This information may have provided additional areas for focus to support further research on the topic of hand-off shift report methods and the use of technology. Additionally, due to potential inconsistencies in how nurses provide hand-off shift report communication, a formal program incorporating coaching, team training, and observations for data collection may be beneficial to future project outcomes.

Implications for nursing practice and to the DNP Essentials

The implications to nursing practice and leadership from this project were the importance of engaging the direct care nurses in changes that impact their workflow, the acknowledgement from nursing leadership that changing the hand-off tool is not needed to change the practice of hand-off shift reporting, and the standardized hand-off approach to bedside shift report may vary among

nursing units with specialty patient populations. Empowering the frontline nurses to make changes to their practice using evidence is imperative to the success of a project. The nursing staff was engaged in the development and implementation of the new hand-off shift report tool. Although, the results were not statistically significant it has established the groundwork for further hand-off tool and process development. Leading these nurses through further tool and process revisions with the potential for research is the role of a DNP prepared nurse.

Leadership acknowledgement that the tool used in this project is not the barrier to effective communication has established the framework for further innovative approaches to hand-off shift reporting. Using the electronic medical record to populate the patient information in this hand-off tool was found to be a barrier by the nurses that participated in this project. The technology limited patient information that could be included and excluded in the tool design resulting in information that was lengthy and not pertinent to hand-off or missing information the nurse deemed as pertinent to the patient condition. The results from this project and the results from another colleague's project on the effectiveness of hand-off communication will be used to assist in developing a framework for further investigation. The investigation will include collaboration with other users of the electronic medical record system and follow-up on the sustainability of those that have successfully implemented a hand-off shift report as published by Thomas and Donohue-Porter (2012). The DNP prepared nurse has been provided the skills and knowledge to lead this development.

Defining a standardized approach to hand-off shift report is also needed, the hand-off communication process should consider the needs of patient populations, resource availability, and nursing competency. A standardized approach to hand-off communication must meet the needs of the patient population and represent pertinent exchange of information in developing a multi-disciplinary plan of care. The standardized approach can be a framework with a tool that is customized based on the needs of the nursing unit and patient populations. The use of the electronic medical record in the hand-off shift report process needs further investigation. The nurses

participating in this project had voiced concerns with the current electronic tool and there was not sufficient evidence from this project results to support changing to a new electronic tool. The hand-off shift report should be clear and concise without large amounts of non-pertinent patient information and data included in the reporting tools. The DNP prepared nurse can lead the development of new approaches that use various modes of hand-off shift report, such an electronic tool that does not pull data directly from the medical record or a combination tool including an electronic and manual process.

Education and hand-off communication competency is another area to further investigate. This project assisted in the discovery of limited education provided for nurses on an effective hand-off communication process. It also assisted in identifying variables that may influence effective communication such as the limited timeframe to complete hand-off report on multiple patients, privacy issues and concerns when discussing patient information, and lack of confidence in providing a thorough report. Many of these variables can be addressed through mentorship, coaching, formal education program, and developing a concise method of reporting patient information. The DNP prepared nurse has the skills to develop the coaching and didactic components to elevate nursing knowledge and the implementation of an effective patient hand-off at the time of shift changes.

Doctor of Nursing Practice (DNP) prepared advanced practice nurses are in a unique position to transform patient care and position themselves as leaders that guide the use of evidence based practice, development of healthcare policy, and promotion of safe patient care. Effective communication during the transfer of patient care is vital to ensuring patient safety. Hand-off communication at the time of inter-shift change and transfer to different levels of care is especially vulnerable to breakdowns in communication due to the complexity of the patient's condition and the time allotted for communication. The use of technology and a standardized approach to handoff communication has been suggested as a means of ensuring essential information is conveyed. This

project is one example of a quality improvement project that the DNP can help implement, evaluate, and sustain into practice.

Healthcare organizational leadership including the DNP prepared nurse leader can use the results of this project to develop and support team training and implement strategies on effective communication and building positive healthcare provider relationships with the aim of improving teamwork and patient outcomes. The DNP prepared nurse possesses the leadership skills, knowledge and motivation to effectively apply knowledge into practice. The DNP prepared advanced practice nurse can use principles of leadership to ensure that quality improvement initiatives such as a standardized hand-off shift report process are developed, implemented, adhered to, and sustained.

There are eight essentials in the DNP education (AACN, 2006). These include:

I. Scientific Underpinnings for Practice
II. Organizational and Systems Leadership for Quality Improvement and Systems Thinking
III. Clinical Scholarship and Analytical Methods for Evidence-Based Practice
IV. Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care
V. Healthcare Policy for Advocacy in Health Care
VI. Interprofessional Collaboration for Improving Patient and Population Health Outcomes
VII. Clinical Prevention and Population Health for Improving the Nation's Health
VIII. Advanced Nursing Practice

This quality improvement project specifically addressed four of the eight Essentials of Doctoral Education for Advanced Nursing Practice (DNP) and demonstrates many of the competencies required for degree completion (AACN, 2006).

- Essential I, *Scientific Underpinning for Practice*, outlines how the practice doctorate in nursing provides the terminal academic preparation for nursing practice. The scientific underpinnings of this education reflect the complexity of practice at the doctoral level and the rich heritage that is the conceptual foundation of nursing**.** Integrated nursing science means incorporating other sciences such as ethics, organizational, and analytics into nursing science. Analytical science was integrated into this hand-off shift report project through data collection and analysis, evaluation of other research, and developing methodology. Also in developing this project, the identification of the stakeholders within an organization is vital to the success of a project. Therefore, understanding the organizational structure, mission, and vision is important to ensure that a project aligns with organizational strategies. Utilizing theories from other professions may influence our understanding of nursing within interprofessional teams and assist in implementing concepts for improvements in quality patient care. The hand-off project was a quality improvement project using a tool from the AHRQ TeamSTEPPS® program which originated with pilots and helicopter crews from the U.S. Department of Defense (AHRQ, 2006). These initiatives were developed and evaluated over time through structured processes and outcomes evaluation. The science utilized in evaluating patient and nursing outcomes is an important step in the implementation of an evidence based project. This project evaluated the impact of a standardized electronic report tool on both

nurse and patient satisfaction with the aim of improving patient safety through effective hand-off communication.

- Essential II, *Organizational and Systems Leadership for Quality Improvement and Systems Thinking,* outlines a conceptual framework for advanced nurses to utilize system thinking and leadership skills to impact healthcare reform and quality improvement. Currently in the United States healthcare system, financial incentives to improve quality are being used by regulatory agencies, payers, and coalition groups to drive cost and efficient care (Kovner & Knickman, 2011). These changes have been supported with landmark reports and initiatives, such as, *Crossing the Quality Chasm* (IOM, 2001) and *The Triple Aims Initiative* (IHI, 2012). Nurses educated at doctoral level are distinctively positioned to assist in improving care in the changing healthcare environment. The advanced- practice registered nurse prepared at the doctoral level has the knowledge and skills to work within a macrosystem to implement evidence based practice such as this quality improvement hand-off shift report project with the potential to impact patient safety.
- Essential III, *Clinical Scholarship and Analytical Methods for Evidence-Based Practice,* outlines the importance of translating research into practice through the dissemination and integration of new knowledge found in scientific research. The DNP prepared nurse provides leadership for evidence based practice through evaluating nursing practices and patient outcomes, participating in collaborative research, and implementing changes in practice supported by evidence. Throughout the DNP program, the DNP prepared nurse learns about the use of analytic methods, design and implementation processes, how to apply research findings to improve practice, the use of technology and research methods,

and the importance of collaboration. One of the first steps in developing the proposal for this project was to design a PICOT question and review the current evidence using a rating system. Melnyk and Fineout-Overholt (2014) refer to evidence based practice as a "lifelong problem-solving approach to clinical practice" that incorporates external evidence (research), internal evidence (performance improvement or outcomes management data), and patient values. The use of conceptual models to implement evidence in practice was also introduced, such as the Rosswurm and Larrabee *Model for Evidence-Based Practice Change* (Rosswurm & Larrabee, 1999). Technology is used in this hand-off project through the development of an electronic hand-off tool, data collection survey process, and data analysis using SPSS. The DNP education prepares the graduate on the use of technology and the importance of collaborative skills.

- Essential IV, *Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care*, addresses the need for advanced nurses to understand the use of information systems and technology to implement quality improvement initiatives, support nursing practice, and assist in making administrative decisions. The DNP prepared nurses are provided the skills necessary on how to select and evaluate technology used in patient care and information systems used to communicate patient health information among providers. The electronic medical records systems are often used to communicate patient information from one healthcare provider to another and across multiple healthcare settings. The DNP nurse is prepared to represent nursing in the selection of these systems among a multidisciplinary team and lead projects that impact patient care through implementation of evidence based practice using the EMR. This hand-off communication project included the design of a

communication tool pulling current patient information from the EMR. This tool is used by nurses to communicate the patient status during shift report in an effort to improve patient safety and transfer pertinent patient information from one nurse or health care provider to another.

This particular project demonstrated the value in analyzing the implementation of practice changes that help inform leaders of lessons learned that could later influence changes impacting patient and staff outcomes. It also demonstrated the value in engaging and empowering the frontline nursing staff to be part of a potential solution to an issue they identified as a concern to their practice and patient care. Through the evidence-based practice (EBP) problem solving approach for the delivery of care, along with harnessing innovation and technology, the DNP nurse leader can improve patient outcomes and reduce the cost of healthcare delivery. This project demonstrated the first steps of the EBP process with an evaluation and analysis of an innovative approach to hand-off shift report leveraging technology. The next steps will be to share the results with the stakeholders from this project including frontline nurses and leadership, compare the outcomes of this project with other hand-off projects outcomes within the healthcare system, develop a plan for a change to the hand-off shift report process, and present recommendations to executive nursing leadership. Data results from this pilot project have the potential to support a larger quality improvement project or development of a research study on the evaluation of a new hand-off shift report tool and process designed specifically for Cleveland Clinic Healthcare System.

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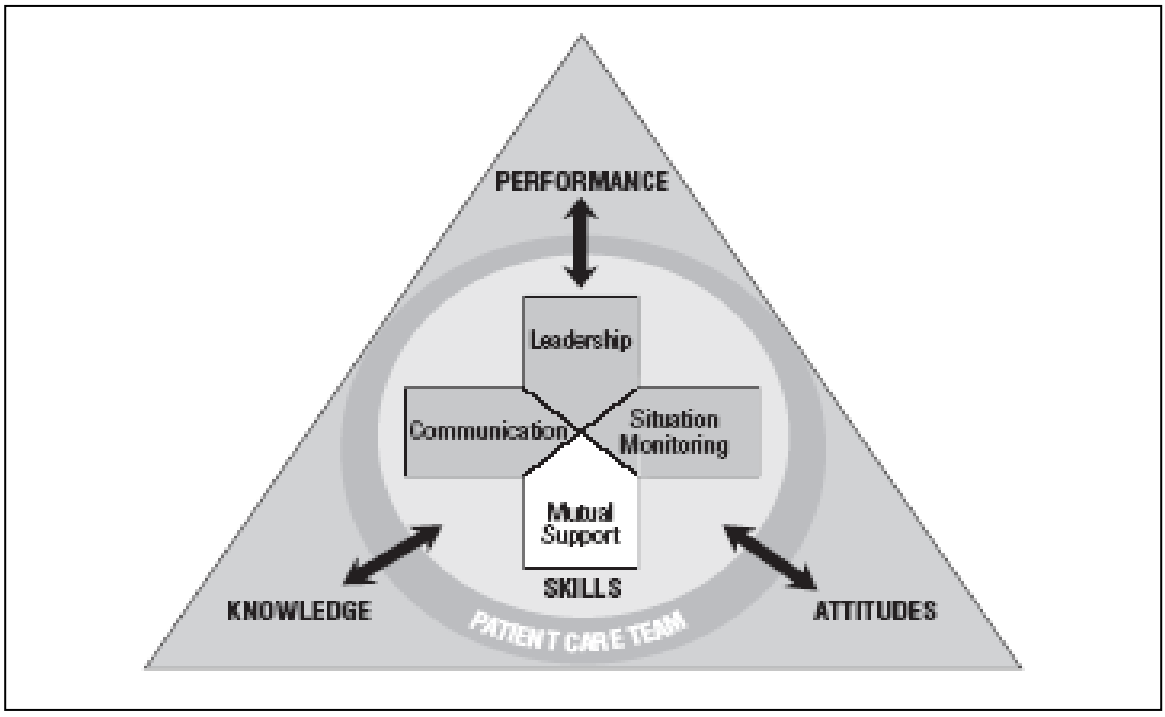
Appendix A



The TeamSTEPPS triangle logo is a visual model that represents some basic but critical concepts related to teamwork training as explained below.

Individuals can learn four primary trainable teamwork skills. These are:
1. Leadership.
2. Communication.
3. Situation monitoring.
4. Mutual support.

If a team has tools and strategies it can leverage to build a fundamental level of competency in each of those skills, research has shown that the team can enhance three types of teamwork outcomes:
1. Performance.
2. Knowledge.
3. Attitudes.

(Agency for Healthcare Research and Quality [AHRQ], 2006).

Appendix B

I PASS the BATON for Shift Report

I	Introduction	Introduce yourself and your role/job (include patient)
P	Patient	Name, identifiers, age, gender, location
A	Assessment	Chief complaint, diagnosis, level of consciousness, vital signs, and symptoms
S	Situation	Current status/circumstances/problems, including code status, advance directives, recent changes, and response to treatment
S	Safety Concerns	Critical laboratory values/reports, socioeconomic factors, allergies, and alerts (isolation, risk of pressure ulcers or falls), restraints, poor swallow reflex
The		
B	Background	Comorbidities, current medications, procedures, family history, previous events
A	Actions	Goals/needs to be met, what actions were taken or are required? Plan of Care. Interventions: turn q 2 hrs, dressing changes, etc.
T	Timing	Reassessments, procedures/surgery preparation, medications scheduled, specimens scheduled. Prioritization based on level of urgency
O	Ownership	Family contacts or health care proxy. Physicians, Residents, LIPs.
N	Next	Engage patient in handoff. Ask what are their concerns, provide instructions on calling for assistance, Discuss plan of care for the day/night, Discuss discharge plan.

Adapted from: Agency for Healthcare Research and Quality. (2006). *TeamSTEPPS: Team strategies and tools to enhance performance and patient safety* [Educational standards]. Retrieved from AHRQ website: http://www.teamstepps.ahrq.gov

Appendix C

HCAHPS Survey

SURVEY INSTRUCTIONS

- You should only fill out this survey if you were the patient during the hospital stay named in the cover letter. Do not fill out this survey if you were not the patient.
- Answer all the questions by checking the box to the left of your answer.
- You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

☐ Yes
☑ No ➔ *If No, Go to Question 1*

You may notice a number on the survey. This number is used to let us know if you returned your survey so we don't have to send you reminders.
Please note: Questions 1-25 in this survey are part of a national initiative to measure the quality of care in hospitals. OMB #0938-0981

Please answer the questions in this survey about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

YOUR CARE FROM NURSES

1. During this hospital stay, how often did nurses treat you with courtesy and respect?
   [1]☐ Never
   [2]☐ Sometimes
   [3]☐ Usually
   [4]☐ Always

2. During this hospital stay, how often did nurses listen carefully to you?
   [1]☐ Never
   [2]☐ Sometimes
   [3]☐ Usually
   [4]☐ Always

3. During this hospital stay, how often did nurses explain things in a way you could understand?
   [1]☐ Never
   [2]☐ Sometimes
   [3]☐ Usually
   [4]☐ Always

4. During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?
   [1]☐ Never
   [2]☐ Sometimes
   [3]☐ Usually
   [4]☐ Always
   [9]☐ I never pressed the call button

Page 1 of HCAHPS (CMS, 2014)

Appendix D: Handoff Nurse Survey

Instructions: Please complete the items below. This survey will be conducted before a change in practice with the handoff report and one month after use of the newly designed report.

Demographic Information: Primary Nursing Unit: _____

A. Age _____ yrs B. Gender (circle one): M F
C. Employment Status (circle one): Full-time Part-time
D. Time of employment on this unit: _____mos _____yrs
E. Years as a Professional Nurse: _____mos _____yrs

Communication Items*:

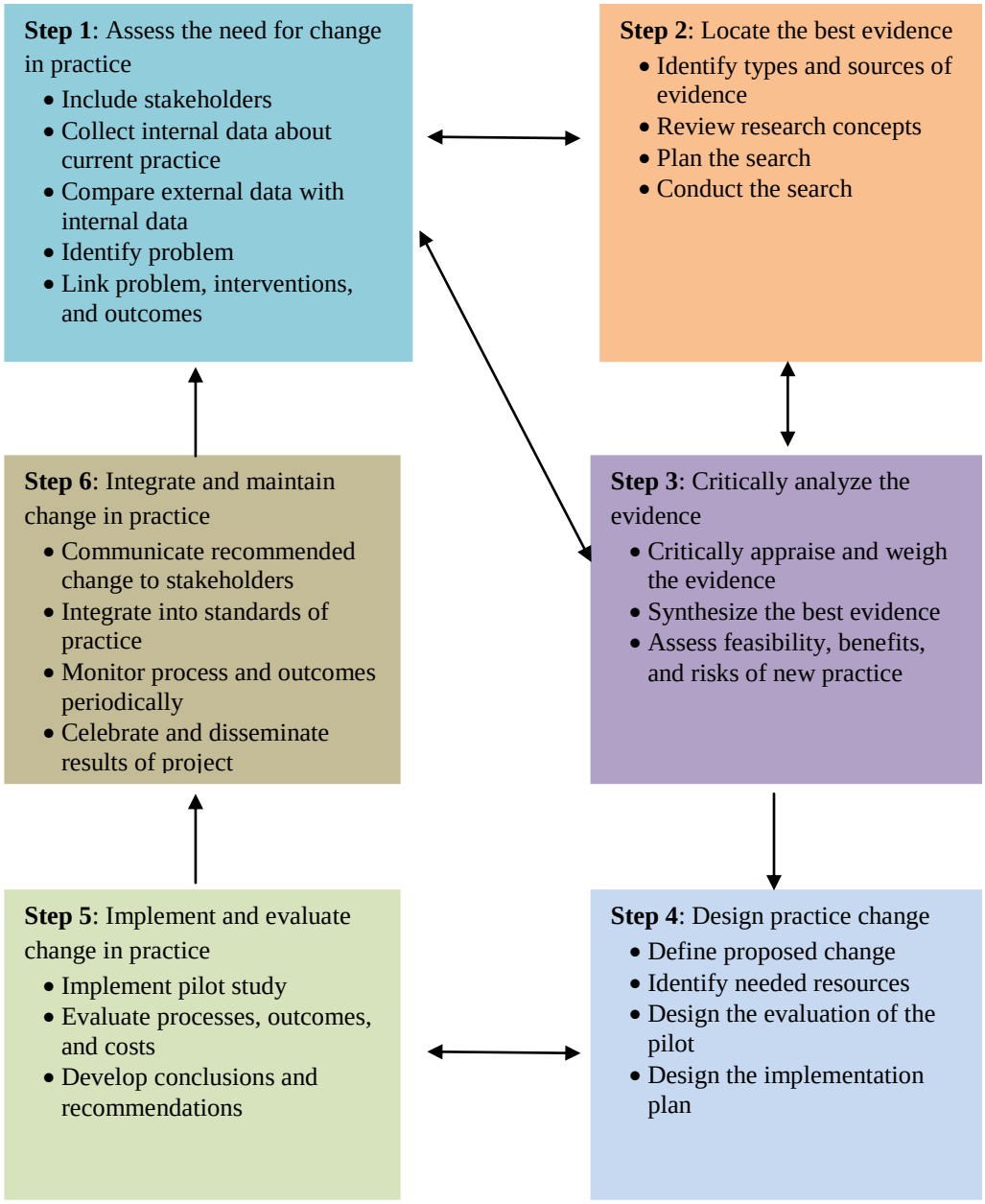
TeamSTEPPS© Questions: (circle the answer that best applies to the question)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Teams that do not communicate effectively significantly increase their risk of committing errors.	1	2	3	4	5
2. Poor communication is the most common cause of reported errors	1	2	3	4	5
3. Adverse events may be reduced by maintaining an information exchange with patients and their families	1	2	3	4	5
4. I prefer to work with team members who ask questions about information I provide	1	2	3	4	5
5. It is important to have a standardized method of sharing information when handing off patients	1	2	3	4	5

Shift Report Questions:	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The electronic change of shift report prepares me to care for my patient	1	2	3	4	5
2. The information contained in the report is consistent with the patient condition at the time of shift report	1	2	3	4	5
3. The information contained in the report is easy to follow	1	2	3	4	5
4. The electronic shift report improves quality of the hand-off shift report process	1	2	3	4	5
5. The electronic shift report improves patient/family communication by engagement in shift report process	1	2	3	4	5

*(AHRQ, 2006) TeamSTEPPS: Teamwork Attitudes Questionnaire, Communication questions.

Appendix E

Model for Evidence-Based Practice Change



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